

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

1-25. (cancelled)

26. (new) A method of transmitting a first parallel data stream over a fiber optic channel, comprising:

converting the first parallel data stream into a plurality of second parallel data streams;  
parallel process converting the plurality of second parallel data streams into a plurality of analog signals;  
combining the plurality of analog signals into a single analog signal;  
converting the single analog into an optical signal; and  
coupling the optical signal to the fiber optic channel.

27. (new) A method as in claim 26 wherein the parallel process converting the plurality of second parallel data streams into a plurality of analog signals further comprises:

encoding the plurality of second parallel data streams into symbols in a plurality of symbol encoders;  
converting the symbols into a plurality of transformed values in an inverse Fourier transformer; and  
converting the transformed values into analog representations in a plurality of digital to analog converters.

28. (new) A method as in claim 26 wherein the parallel process converting the plurality of second parallel data streams into a plurality of analog signals further comprises:

modulating the second parallel data streams in a plurality of modulators;  
mixing the modulated signals in a plurality of mixers and  
filtering the mixed signals in a plurality of band pass filters.

29. (new) A method as in claim 26 wherein the converting the first parallel data stream into a

plurality of second parallel data streams comprises accepting the first parallel data stream from an interface selected from the interfaces consisting of a ten gigabit media independent interface (XGMII) and a ten gigabit extended Attachment Unit Interface (XAUI).

30. (new) A method as in claim 26 wherein the parallel process converting the plurality of second parallel data streams into a plurality of analog signals further comprises:

encoding the plurality of second parallel data streams in a plurality of symbol encoders; and

converting the encoded values into analog representations in a plurality of digital to analog converters.

31. (new) A method of converting an optical signal received from a fiber optic channel into a parallel data stream, comprising:

converting the optical signal received from the fiber optic channel into an analog electrical signal;

converting the analog electrical signal into a plurality of baseband signals; and

converting the plurality of baseband signals into a parallel data stream.

32. (new) A method as in claim 31 wherein the parallel process converting the analog electrical signal into a plurality of baseband signals comprises mixing the analog electrical signal with a plurality of mixing frequencies to produce a plurality of baseband signals.

33. (new) A method as in claim 32 wherein the parallel process converting the analog electrical signal into a plurality of baseband signals comprises mixing the analog electrical signal with a plurality of mixing frequencies to produce a plurality of baseband signals further comprises filtering the plurality of signals mixed with the plurality of mixing frequencies to produce a plurality of baseband signals.

34. (new) A method as in claim 31 wherein the parallel process converting the analog electrical signal into a plurality of baseband signals comprises:

converting the analog electrical signal into a plurality of symbols in a Fourier transformer; and

decoding the plurality of symbols in a plurality of decoders to produce a parallel data

stream.

35. (new) A method as in claim 31 wherein the converting of the analog electrical signal into a plurality of baseband signals further comprises:

sampling and holding successive values of the analog electrical signal;  
providing the held analog values to a plurality of A/D converters; and  
converting the held values to a plurality of baseband signals.

36. (new) A method as in claim 31 wherein the parallel process converting of the analog electrical signal in a plurality of baseband signals further comprises:

sampling and holding successive values of the analog electrical signal;  
providing the held values to a single A/D converter; and  
converting the held values to a plurality of baseband digital signals.

37. (new) A method as in claim 35 wherein the converting of the held values to a plurality of baseband signals further comprises time interleaving the converting of the held values.

38. (new) A method of transmitting and receiving a first parallel data stream over a fiber optic channel, comprising:

converting the first parallel data stream into a plurality of second parallel data streams;  
parallel process converting the plurality of second parallel data streams into a plurality of analog signals;  
combining the plurality of analog signals into a single analog signal;  
converting the single analog signal into an optical signal;  
coupling the optical signal onto the fiber optic channel;  
converting the optical signal received from the fiber optic channel into an analog electrical signal;  
parallel process converting the analog electrical signal into a third plurality of parallel digital signals; and  
converting the third plurality of parallel digital signals into a fourth parallel data stream.

39. (new) A method of converting an optical signal received from a fiber optic channel,

comprising:

- converting the optical signal received from a fiber optic channel into an analog electrical signal;
- providing the analog electrical signal to a plurality of A/D converters; and
- converting the analog electrical signal to a plurality of digital signals.